IN THE CLAIMS:

1. (Currently Amended) Method for controlling a plurality of manipulators with a number of associated control units associated with the manipulators, so that each control unit controls at least one manipulator, the method comprising the steps of:

providing ~~wherein~~ a portable operating device which accesses several control units for controlling the manipulators;

providing ~~, characterized in that~~ movement-relevant control signals and non-movement-relevant control signals, ~~which are~~ the movement-relevant control signals being generated by the portable operating device and ~~are~~ being directly suitable for a motion control of the manipulators in question;

passing the movement-relevant control signals~~, are passed on~~ via a first transmission means in real time to an area of the associated control unit, which area is designed to process motion-relevant control signals in real time;

passing the~~, and that~~ non-movement-relevant control signals ~~are passed on~~ via a second transmission means to an area of the associated control unit, which area is designed for the non-real-time processing of data.

2 - 3 (Cancelled)

4. (Previously Presented) Method according to claim 1, wherein the portable operating device generates the non-movement-relevant control signals.

5. (Previously Presented) Method according to claim 4, wherein the the non-movement-relevant control signals are exclusively directed to a terminal device present in the non-real time area of the associated control unit for the display of operating surfaces of different control units.

6. (Cancelled)

7. (Previously Presented) Method according to claim 1, wherein the portable operating device displays the operating surface of the control unit of the selected manipulator.

8. (Original) Method according to claim 7, wherein there is a graphic display.

9. (Previously Presented) Method according to claim 8, wherein a designation of the manipulators is displayed on the portable operating device for identifying selected manipulators.

10. (Previously Presented) Method according to claim 8, wherein for identifying the selected manipulators an optically acting marking present on the particular manipulator is displayed on the portable operating device.

11. (Original) Method according to claim 8, wherein for identifying the selected manipulators, an acoustic and/or optical signal generator present on the particular manipulator

is activated.

12. (Previously Presented) Method according to claim 8, wherein image contents of the control unit associated with the selected manipulators are digitally transmitted to the portable operating device.

13. (Original) Method according to claim 12, wherein image contents data are compressed prior to transmission.

14. (Previously Presented) Method according to claim 12, wherein standard image elements are transmitted as control instructions and independently displayed by the portable operating device.

15. (Original) Method according to claim 8, wherein image information is transmitted as pixel data.

16. (Currently Amended) Method according to claim 1, wherein the transmission of movement-relevant signals via the first ~~transmitting~~ transmission means is controlled by a first monitoring device and in the case of an interruption of transmission a movement-relevant control signal is generated by said monitoring device.

17. (Previously Presented) Method according to claim 7, wherein the image information data and control signals generated by the portable operating device are transmitted through a same channel.

18. (Previously Presented) Method according to claim 7, wherein the image information data and control signals generated by the portable operating device are transmitted on different channels, a function and target of the channels being controlled by a second monitoring device.

19. (Previously Presented) Method according to claim 1, wherein the manipulator linked by means of the associated control unit with the portable operating device is indicated by an optical and/or acoustic signal generator.

20. (Original) Method according to claim 19, wherein the operability of the signal generator is monitored by a monitoring device.

21. (Previously Presented) A system for controlling a plurality of manipulators, the system comprising:

a plurality of control units associated with each of the manipulators, so that each control unit controls at least one manipulator, each of the control units have a real-time area set up for execution of a real-time-capable operating system and have a non-real-time area for execution of a non-real-time-capable operating system, said real-time areas of said control units being

designed to process movement-relevant control signals, which are sent to the real-time-capable operating system and are directly suitable for a motion control of a respective one of the manipulators, said non-real-time areas perform non-real-time processing of non-movement-relevant control signals;

a common operating device connectable with at least one specific control unit for operating the manipulators, said common operating device being designed to operate the manipulators in real time by the movement-relevant control signals, said common operating device being further designed to generate non-movement-relevant control signals.

22 - 23. (Cancelled)

24. (Previously Presented) Device according to claim 21, wherein the real time areas (RT) of the control units are connected by means of a first transmitting device and the non-real time areas (NRT) of the control units are connected by means of a second transmitting device.

25. (Previously Presented) A system according to claim 21, wherein at least one control unit has in its non-real time area (NRT) a terminal device for displaying operating surfaces (BOF) of different control units.

26. (Previously Presented) A system according to claim 21, wherein at least one control unit has a detecting device for detecting a control unit controlling the selected

manipulators.

27. (Previously Presented) A system according to claim 26, wherein the real time areas (RT) of the control units are connected by means of a first transmitting device and the non-real time areas (NRT) of the control units are connected by means of a second transmitting device, the control unit having the detecting device has a path control device on which action can take place through the detecting device, so that the movement-relevant control signals can be directed via the first transmitting device to the control unit associated with the selected manipulators.

28. (Previously Presented) A system according to claim 27, wherein the movement-relevant control signals can be directed to the terminal device in parallel to a transmission to the associated control unit.

29. (Previously Presented) A system according to claim 25, wherein further, non-movement-relevant control signals generated by the common operating device can be directed exclusively to the terminal device.

30. (Previously Presented) A system according to claim 25, wherein the real time areas (RT) of the control units are connected by means of a first transmitting device and the non-real time areas (NRT) of the control units are connected by means of a second transmitting device,

all the control signals between the terminal device and an operating surface (BOF) can be communicated to the associated control unit by means of the second transmitting device.

31. (Previously Presented) A system according to claim 21, wherein the common operating device has a display device for displaying operating surfaces (BOF) of different control units.

32. (Cancelled)

33. (Previously Presented) A system according to claim 31, wherein on the common operating device is in each case displayed the operating surfaces (BOF) of the associated control unit.

34. (Previously Presented) A system according to claim 21, wherein display, control and/or safety signals can be transmitted on a bus/data channel.

35. (Previously Presented) A system according to claim 31, wherein display and control signals between the control units and the common operating device can be transmitted on a common data channel.

36. (Previously Presented) A system according to claim 31, wherein display and

control signals between the control units and the common operating device can be transmitted on separate data channels.

37. (Previously Presented) A system according to claim 36, further comprising an monitoring device constructed for monitoring a function and a target of the data channels.

38. (Previously Presented) A system according to claim 31, further comprising a clear association between the displayed operating surface (BOF) and the selected manipulator.

39. (Previously Presented) A system according to claim 31, wherein the operating surface (BOF) and manipulator have substantially identical, optically acting markings (M.sub.1, M.sub.2, M.sub.3).

40. (Previously Presented) A system according to claim 38, wherein the manipulators in each case have optical and/or acoustic signal generators (S), which are in each case constructed for transmitting a signal for the display of a selected manipulator.

41. (Previously Presented) A system according to claim 21, further comprising a safety transmitting device interconnecting the control units of all the manipulators.

42. (Previously Presented) A system according to claim 21, wherein control signals

generated by the common operating device can only be directed following verification to the associated control unit.

43. (Previously Presented) A system according to claim 42, further comprising optical and/or acoustic signal generators (S) located on the manipulators and which are constructed for displaying a given link, between the common operating device and the manipulator.

44. (Previously Presented) A system according to claim 43, further comprising a monitoring device for monitoring the operability of the signal generator.

45. (Previously Presented) A method for controlling a plurality of manipulators the method comprising the steps of:

providing a control unit for each of the plurality of manipulators, each control unit receiving control signals indicating how a respective manipulator should be controlled, each of the control units having a high priority area and a low priority area for processing the control signals, each high priority area processing the control signals with a higher priority than a respective low priority area;

providing an operating device receiving instructions from a user;

generating control signals at the operating device and sending the control signals to the control units of each of the plurality of manipulators;

dividing the control signals into motion-relevant control signals, and non-motion-

relevant control signals;

sending the motion-relevant control signals to the high priority area of one of the control units;

sending the non-motion-relevant control signals to the low priority area of one of the control units.

46. (Previously Presented) A method in accordance with claim 45, wherein:

the high priority areas of the control units process the motion-relevant control signals in real time to control the respective manipulator;

the low priority areas of the control units process the non-motion-relevant control signals in non-real time to control the respective manipulator.